

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. After amending the claims as set forth above, claims 22-31 and 33-43 are now pending in this application.

Priority

Applicant respectfully requests acknowledgement of the claim for foreign priority and receipt of the copies of the certified copies of the priority documents received in the National Stage Application from the International Bureau.

Rejection of claims 30-31 and 33-39 based on 35 U.S.C. 101

Claims 30-31 and 33-39 are rejected under 35 U.S.C. 101 because it is alleged that the claimed subject matter does not appear to produce a useful, concrete and tangible result. Claim 30 has been amended to incorporate the subject matter of claim 32, which the PTO has stated appears to be statutory. For at least this reason, favorable reconsideration of the rejection is respectfully requested.

Claim Objections

Claims 30 and 34 are objected to because of the use of the expressions $\Delta 1$ and $\Delta 2$. It is respectfully submitted that these expressions have been consistently used in the specification, and would be understandable to one with ordinary skill in the art. For example, the paragraphs starting on page 3, line 12, and page 4, line 25, of the written description provide that Δ means a time difference and $\Delta 1$ and $\Delta 2$ are two different time differences. Because these expressions are well explained, it is respectfully submitted that no alterations of the expressions are necessary. For at least these reasons, favorable reconsideration of the objection is respectfully requested.

Rejection of claims 22-39 based on 35 U.S.C. 103

Claims 22-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,129,394 ("Mehra") in view of U.S. Patent 7,110,817 ("Yu"). For at least the following reasons, this rejection is traversed.

Claim 22 (as amended) recites, among other things, a pressure measurement device comprising a pressure sensor and a processing means. The processing means is adapted to determine, during a number of measurement periods, a set of pressure values and a set of first order time derivative values determined from the set of pressure values. Each measurement period includes a number of heart cycles. The processing means also is adapted to calculate

maximum first order time derivative values for each of the heart cycles during one measurement period, and to calculate a predefined parameter. The predefined parameter is an average or median value of said maximum values from the one measurement period. The pressure measurements are adapted to be performed during measurement periods related to different predetermined medical implant settings in a medical implant controlling application of stimulation pulses at least in the left and right ventricles of the heart. The different predetermined medical implant settings include that of the VV-interval. An optimal medical implant device setting of the VV-interval is identified as a setting where the predefined parameter is maximal. Mehra, Yu, or any combination thereof fails to teach or suggest this combination of features.

For instance, claim 22 provides that the implant setting relates to the VV-interval. Support for this feature can be found in the paragraph starting at page 4, line 31, of the specification. The objective problem, solved by the features of amended claim 22, is the optimization of the settings of the VV-interval of a medical implant controlling the application of stimulation pulses to the left and right ventricles of the heart. Amended claim 22 differs from Mehra and Yu, for example, in that an average or median value of the maximum derivative values from one measurement period is determined so as to be used in order to identify an optimal setting of the VV-interval.

Mehra is merely directed to adjust the rate of a pacemaker, but does not disclose which parameters that are intended to be optimized. Furthermore, it is not mentioned in Mehra to optimize the VV-interval in a biventricular pacing system. Yu is directed to optimize an atrio-ventricular delay (AVD) by measuring the AV time interval and using a predetermined equation. In contrast, the invention of claim 22 is directed to optimize the VV-interval, for example, in a biventricular pacing system. No combination of Mehra and Yu teaches or suggests an optimal medical implant device setting of the VV-interval being identified as a setting where a predefined parameter is maximal, wherein the predefined parameter is an average or median value of maximum first order time derivative values from one measurement period. Accordingly, claim 22 is allowable over the prior art.

Claims 30 and 38-39 recite, a method comprising or a computer program that carries out the steps of: detecting continuously during at least one measurement period left ventricular pressure of a heart (P_{LV}); transducing said left ventricular pressure to a processable signal; receiving said processable signal; calculating a first order time derivative (dP_{LV}/dt) of said left ventricular pressure by processing said processable signal; forming and displaying a

set of values representing the left ventricular pressure (P_{LV}) and a set of values representing the first order time derivative of said left ventricular pressure (dP_{LV}/dt); and calculating a value of a predefined parameter of said set of first order time derivative values during the at least one measurement period. The predefined parameter is an average or median value of maximum values of the set of first order time derivative values for each heart cycle during the at least one measurement period. The pressure measurements are performed during measurement periods using predetermined medical implant settings in a medical implant controlling application of stimulation pulses at least in left and right ventricles of the heart. The predetermined medical implant settings include that of an VV-interval and a first time difference Δt , wherein the first time difference is a time between stimulations in the left and right ventricles. The step of choosing an implant setting of the VV-interval from a measurement session list that fulfills an optimal implant setting criterion is also provided. Mehra, Yu, or any combination thereof does not teach or suggest this combination of features.

Mehra is merely directed to adjust the rate of a pacemaker, but does not disclose which parameters that are intended to be optimized. Yu is directed to optimize an atrio-ventricular delay (AVD) by measuring the AV time interval and using a predetermined equation. In contrast, the inventions of claims 30 and 38-39 are directed to optimize the VV-interval, such as for example, in a biventricular pacing system. No combination of Mehra and Yu teaches or suggests choosing an implant setting from a measurement session list that fulfills an optimal implant setting criterion, wherein the measurement session list are calculated values of average or median values of maximum first order time derivative values from a measurement period. Accordingly, claims 30 and 38-39 are allowable over the prior art.

Claims 23-29, 31, and 33-37 depend from and contain all the features of claim 22 or claim 30, and are allowable for the reasons indicated above, without regard to the further patentable features contained therein.

Claim 32 has been canceled, which renders the rejection of this claim moot.

For at least these reasons, favorable reconsideration of the rejection is respectfully requested.

Allowability of claims 40-43

Claims 40-42 are added. Support for claims 40 and 42 is found in the paragraph starting at page 4, lines 31 of the written description. Claims 40-42 depend from and contain

all the features of claim 22 or claim 30, and are allowable for the reasons indicated above, without regard to the further patentable features contained therein.

Claim 43 is added, and is allowable of analogous or similar reasons to those provided above.

Allowance of claims 40-43 is respectfully.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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